

## Hair Loss in Women – What Can Be Done?

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Thinning scalp hair is usually not related to serious health issues, but can be a huge source of stress and anxiety for women. In most cases, the reason can be determined by consultation with a board-certified dermatologist.

Many women experience thinning hair on the scalp. There are several common reasons related to hormonal changes (particularly around menopause), immune system abnormalities (eg, thyroid disease), stress, family history, and physical damage done to the hair through overuse of chemicals, heat, and processing. Not all types of hair loss can be prevented, but several can be treated effectively.

When the cause of hair loss isn't clear, a skin biopsy of the scalp or blood tests may be helpful. Alopecia is the medical term for abnormal hair loss from any cause. A dermatologist has the medical training and expertise to manage all types of alopecia and will be able to guide you to determine if you need further testing and to review your treatment options.

What are the most likely reasons for hair loss in women? It is actually natural to have some hair loss or shedding. The American Academy of Dermatology reports that people lose up to 150 scalp hairs each day. This is completely normal. If you are noticing thinning scalp hair or see smooth scalp areas completely devoid of hair, you may be experiencing abnormal hair loss.

### Common Causes of Hair Loss:

#### *Androgenetic Alopecia/Female Pattern Hair Loss (FPHL)*

This is the female version of male baldness which affects 50% of men over the age of 50. The good news is that unlike men, women almost never go completely bald. In women, this pattern of hair loss occurs on the crown or topmost part of the scalp. It is related to the effect of hormones called *androgens (testosterone and dihydrotestosterone, or DHT)* on the hair follicles of the scalp. These androgens actually bind to receptors on the hair follicle and work to miniaturize or shrink hair follicles so that they only grow tiny, peach fuzz-type hairs. The affected scalp hairs become so tiny that they are almost too

small to see. Some women may experience more severe FPHL due to a genetically increased sensitivity of their hair follicles to androgens. Testosterone and DHT also shorten the length of the growth period (the anagen phase) during the hair growth cycle. This means that hairs stop growing sooner and shed earlier than normal, leading to the appearance of hair thinning and increased hair loss.

Androgenetic alopecia is very common and affects 30-50 million women in the US. It's no surprise that women start to experience this form of hair thinning when estrogen levels start to decline during their 40s and 50s. It becomes more noticeable after menopause when estrogen production completely ceases, and the androgen effect on hair follicles is no longer offset by estrogen, leading to further miniaturization, earlier shedding and the appearance of thinning scalp hair.

### Alopecia Areata

This type of hair loss is an autoimmune condition and often develops suddenly with the appearance of smooth, coin-shaped, completely hairless patches of skin on the scalp. The affected scalp is pink and smooth resembling a "baby's bottom." The cause of alopecia areata is unknown, but genetics and environmental factors such as stress are thought to be possible factors. Approximately 2% of the population may develop alopecia areata in their lifetime and it often begins in childhood.

This autoimmune condition specifically targets the hair follicle, is usually harmless and is not associated with other serious autoimmune conditions. Occasionally, both autoimmune thyroiditis (ie, Hashimoto's disease) and alopecia areata may develop in the same person. The hairless patches on the scalp usually grow back spontaneously after a few months, and the first hair regrowth may appear white before resuming its normal color.

Alopecia areata can relapse unexpectedly. New areas of hair loss may develop suddenly, sometimes after many years of no sign of activity. Although this can be distressing, your dermatologist can administer scalp injections directly into the affected areas using a dilute concentration of cortisone. This treatment is safe, very effective, and is repeated every 4-6 weeks until hair regrowth is sufficient.

### Diet, Stress and Pregnancy

These factors commonly lead women to notice that their hair feels thinner than usual. This form of alopecia is called *telogen effluvium* which literally means "a

flood of hair loss” and typically occurs rapidly over a period of weeks to months following a major stressful event. Telogen effluvium may also be triggered by crash dieting or rapid weight loss, surgery, extreme emotional distress (eg, after the loss of a loved one) or an illness with fever. In all of these situations, the cause of the “flood” of hair loss is the effect of stressors on the hair follicle. This results in an abrupt shortening of the hair growth cycle from a normal 3-year period of growth for each hair to only a few months’ growth before the hair is shed.

With telogen effluvium, hair loss can be dramatic. Large clumps of hair can fall out suddenly, leading to diffuse thinning or obvious baldness around 3-4 months after the inciting event. Fortunately, this type of alopecia is completely reversible and you should be reassured that your hair will grow back normally within a year or so.

### Medical Conditions

*Thyroid disease (both over- and under-active thyroid), iron deficiency anemia, connective tissue diseases (such as lupus), eating disorders and nutritional deficiencies (ie, protein, vitamins, minerals)* can result in diffuse scalp hair loss. Treatment of these medical conditions and restoration of health through the combination of medications, proper diet and close medical follow-up can often be helpful in reducing the related hair loss and bring back the normal hair growth cycle.

### Central centrifugal cicatricial alopecia (CCCA)

This is a scarring form of hair loss on the scalp that results in permanent hair loss. It is the most common type of scarring alopecia seen in Black women. CCCA is characterized by slowly progressive hair loss beginning at the crown or mid-scalp area and extends outward in a centrifugal manner. There is a gradual loss of hair follicles and the scalp appears shiny. Tenderness, itch and burning are common.

Early diagnosis of CCCA is important because medical intervention can help to prevent further progression which results in extensive, permanent hair loss. A scalp biopsy may be performed when the diagnosis is uncertain and will show inflammation and scarring of the hair follicles.

The exact cause of CCCA is unknown and a genetic component has been proposed with a link to mutations of a gene that is necessary for normal formation of the hair-shaft. Hair care practices, such as the use of the hot comb, relaxers, tight extensions and weaves have not shown a consistent link with the development of CCCA.

The treatment goal in CCCA is to stop progression of the disease since regrowth of hair is not possible once scarring has occurred. Topical steroid ointments, steroid injections, oral antibiotics, Plaquenil, minoxidil and hair transplantation have all been tried with variable success. Natural hairstyles are encouraged in women with CCCA and discontinuation of all traumatic hair care practices is essential to prevent further loss through hair breakage.

### Frontal Fibrosing Alopecia (FFA)

This is a scarring form of hair loss that affects post menopausal women. FFA is characterized by slowly progressive alopecia along the front and sides of the scalp. This eventually results in the appearance of a receding frontal hair line that can involve all the way around the scalp margin, both front and back. The affected scalp looks shiny, or mildly scarred, without visible hair follicle openings. Single “lonely” hairs often persist in the bald areas and loss of eyebrows can also occur. Itch and pain are common symptoms.

A skin biopsy of the scalp may be required to make the diagnosis of FFA, which shows the characteristic scarring and inflammation of this autoimmune disease. FFA is also frequently reported in women with other autoimmune diseases including lupus, hypothyroidism and rheumatoid arthritis.

Unfortunately, there is no uniformly effective treatment for frontal fibrosis alopecia. A short course of oral steroids, steroid injections directly into the affected scalp areas, anti-inflammatory antibiotics such as tetracyclines, antimalarial pills (Plaquenil), or Propecia (finasteride) may benefit some patients. Newer oral biologic agents used in other autoimmune diseases to suppress inflammation (JAK inhibitors) are currently promising.

FFA is a slowly progressive form of hair loss that ceases after several years. As it is a scarring alopecia, the receding hairline does not regrow unless treatment is started early.

### Treatment:

#### 5% Minoxidil (Rogaine)

This is a topical product that is available without prescription in both foam and liquid preparations and is applied directly on the scalp twice daily. In people who use minoxidil as directed, one third will experience some hair regrowth, another third of will maintain the amount of hair they already have, and another third of people will see no benefit.

It is the only FDA-approved medication for female hair loss (FPHL) and is safe and effective for many users. Minoxidil however, should not be used if you are pregnant or breastfeeding since it is not known whether minoxidil passes into breast milk or if it could harm a nursing baby. You also will need to continue using it twice daily to maintain any new hair growth. Side effects are uncommon and are limited to irritation, possible allergy and unwanted excessive hair growth in other body areas which are inadvertently exposed to it. For this reason, do not apply minoxidil immediately before bedtime to avoid getting it on your pillow—this could result in unwanted facial hair growth. Available at Costco and local pharmacies without a prescription.

### Platelet Rich Plasma (PRP)

PRP is an effective treatment for female and male hair loss. It has gained tremendous popularity in recent years since it requires no medication and is a relatively simple procedure performed in the dermatologist's office.

How does it work? Platelets in human blood are a natural source of growth factors that serve to promote cell growth, proliferation and regeneration. The use of platelet rich plasma (PRP) has also seen numerous applications in medical therapy in the last decade. These include important innovations in surgery for wound healing and ligament and cartilage repair, as well as in dermatology for acne scarring and skin rejuvenation.

For treating hair loss, PRP is obtained by drawing a few milliliters of your blood and then putting it in a centrifuge, a machine where the blood is spun at high speed to separate the platelets from the red cells. Your platelets are then transferred to syringes and injected in small amounts throughout your scalp. The treatment itself takes only a few minutes and is repeated once a month for four to six treatments. This is followed by maintenance treatments (using the same protocol) every 3 months to maintain and increase new hair growth. The discomfort of the procedure is minor and can be minimized by preparing the scalp with a cooling device or ice immediately prior to the injections.

Many peer reviewed scientific studies in the medical literature have shown that the majority of patients treated with PRP experience successful hair growth both in female and male androgenetic alopecia, as well as for alopecia areata. My own experience is that PRP treatment is highly effective in achieving cosmetically acceptable new hair growth in both female and male patients. This is a cosmetic treatment (not covered by medical insurance) that is performed by a dermatologist. Cost is approximately \$600-\$700 per treatment.

## Spironolactone

This oral medication has been used for thirty years as an off-label treatment for female androgenetic alopecia (FPHL). Spironolactone prevents the progression of hair loss due to its anti-androgenic properties, and has a favorable long-term safety profile. It is used in doses higher than when it is used for acne and must be prescribed only to women who are not planning to become pregnant.

For women of child bearing potential (ie, pre-menopausal), it is highly recommended that when taking spironolactone, you also use a birth control pill or other effective contraception in order to prevent birth defects. Due to its anti-androgen activity, spironolactone should also be avoided in women with a personal or family history of estrogen receptor positive breast cancer.

## Botanical Supplements: Saw Palmetto

There are several oral hair loss supplements that are sold online, in retail stores and in doctors' offices without a prescription. Many of these over-the-counter supplements claim to grow hair in women.

One of the most popular of these over-the-counter oral supplements is currently marketed as Nutrafol, a pill which contains the active ingredient, Saw palmetto. This ingredient is extracted from a small palm native to the Southeastern United States called *Serenoa repens*. Saw palmetto functions to reduce the androgen effect on hair follicles. It achieves this by inhibiting a major enzyme called 5-alpha reductase. This important enzyme converts testosterone to a more potent androgen, DHT. By blocking the production of DHT, it lowers the amount of androgens available to bind to the hair follicle and helps to stop the miniaturization or shrinkage of hair follicles, preserving hair thickness.

Important: Saw palmetto also **activates estrogen receptors** and may be harmful in women with a history of estrogen receptor positive breast cancer. For this reason, non-prescription supplements such as Nutrafol vitamins should always be cleared by your physician prior to use.

## Other

### Low Level Laser Therapy (LLLT)

Small studies with patients using a low level laser light device with light-emitting diodes, fashioned as a helmet, comb, or head band show some improvement for FPHL. The mechanism is not clear, but it is suggested that low level laser

light may activate hair follicles, increase blood flow and stimulate energy metabolism of the hair follicle. Convenient, FDA approved, and available online.

### Hair Transplantation

Highly dependent on the skill of the surgeon and the technique used. Cosmetic procedure, not covered by medical insurance. Often expensive, uncomfortable, time consuming, and with variable results.

### Vitamin Supplements

B vitamins such as Biotin and B12, zinc, vitamin A and other nutrient supplements have been purported to increase hair growth. Most healthy people are not deficient in these nutrients. There appears to be little to no benefit in adding more of these nutrients to your normal diet if you are otherwise well. In fact, excessive vitamin A may actually cause hair loss. If desired, a daily women's multivitamin (such as One-a-Day for Women) is safe and reasonable for those who are interested in ensuring optimal levels of these nutrients in the body.

### Topical Products

Shampoos, oils, serums and other hair products that claim to grow hair are simply coating the hair shafts or adding pigment to the scalp in order to give the appearance of increased hair thickness. These may be suitable for many consumers who are satisfied with their cosmetic effects. With the exception of 5% Minoxidil which is FDA approved for FPHL, none of these topical products have shown scientific evidence that they stimulate hair growth.

**If you are a woman experiencing hair loss, see a dermatologist to determine the cause and the best treatment options for you.**

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